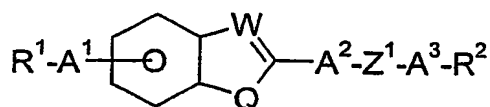


## Claims

1. Polymerizable, luminescent compounds of formula I



wherein

10  $R^1, R^2$  are independently of each other H, halogen,  $\text{NO}_2$ , CN, NCS, straight chain, branched or cyclic alkyl with 1 to 25 C-atoms wherein one or more  $\text{CH}_2$  groups may also be replaced by  $-\text{CO}-$ ,  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{NR}^\circ-$ ,  $-\text{CH}=\text{CH}-$ ,  $-\text{C}\equiv\text{C}-$  in such a manner that O- and/or S-atoms are not linked directly to one another, and wherein one or more H-atoms may also be replaced by F or Cl, or denotes  $\text{P}-(\text{Sp}-\text{X})_n-$ ,

20 Sp is a spacer group with 1 to 20 C-atoms,

P is a polymerizable group,

25 X is  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CO}-\text{NR}^\circ-$ ,  $-\text{NR}^\circ-\text{CO}-$ ,  $-\text{NR}^\circ-$  or a single bond,

n is 0 or 1,

$R^\circ$  is H or alkyl with 1 to 5 C-atoms,

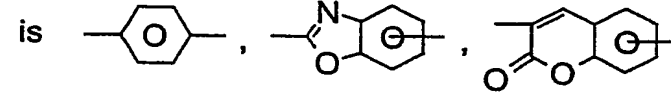
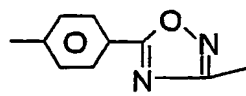
30  $A^1$  is 1,4-phenylene, wherein 1, 2, 3 or 4 H-atoms may be replaced by F or Cl, or a single bond,

35 Q is  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{NR}^\circ-$  or  $-\text{N} \begin{array}{l} \diagup \\ \diagdown \end{array} (\text{X}-\text{Sp})_n-\text{P}$ ,

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W is -CH=, -N= or -CO-CH=,

A<sup>2</sup> is 1,4-phenylene or 2,5-thiophene, wherein in each case one or more H-atoms may be replaced by F or Cl, or denotes a single bond,

A<sup>3</sup> is  or , wherein one or more H-atoms can be replaced by F or Cl,

Z<sup>1</sup> is -CH=CH-, -CF=CH-, -CH=CF-, -CF=CF- or a single bond

with the proviso that

a) the compounds of formula I contain one, two or more groups -(X-Sp)<sub>n</sub>-P,

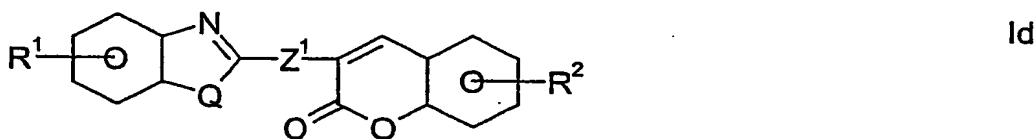
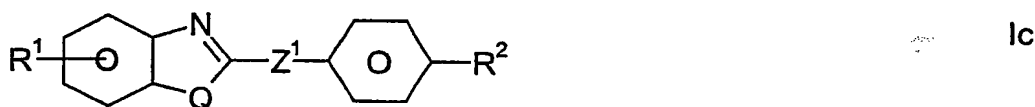
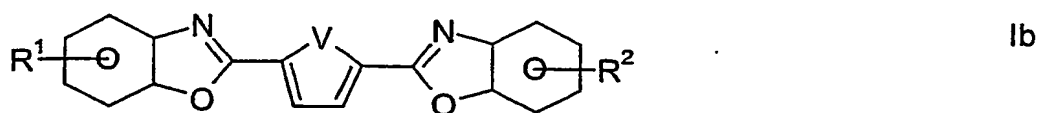
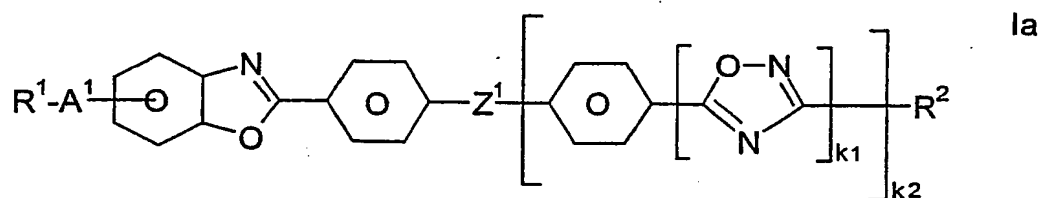
b) if W denotes -CO-CH=, then



[der Fall "not fused" ist wohl kein luminesz. Farbstoff]  
c) if W is -N=, Q is -O-, A<sup>2</sup> and Z<sup>1</sup> are a single bond, A<sup>3</sup> is 1,4-phenylene and R<sup>2</sup> is P-(Sp-X)<sub>n</sub>- then R<sup>1</sup> is an achiral group, [siehe Kim et al., Bull Korean Chem. Soc. 20, 1999, 473]

d) if W is -N=, Q is -O-, A<sup>2</sup> and A<sup>3</sup> denote 1,4-phenylene and Z<sup>1</sup> is a single bond then A<sup>1</sup> is a single bond. [siehe WO 00/97104 "Pigment flakes" S. 35]

2. Compounds according to claim 1 wherein W denotes -N=.
3. Compounds according to claim 1 wherein W denotes -CH= and Q is -O-.
- 5 4. Compounds according to claim 2 selected of the following subformulae



wherein

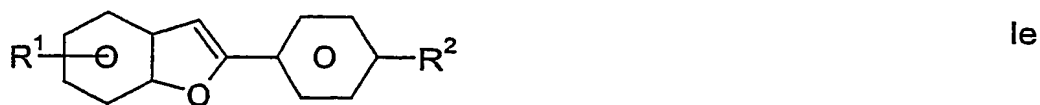
k1, k2 are independently of each other 0 or 1,

V is -S- or -CH=CH- and

R<sup>1</sup>, R<sup>2</sup>, Q,  
Z<sup>1</sup> and A<sup>1</sup> are defined as in claim 1,

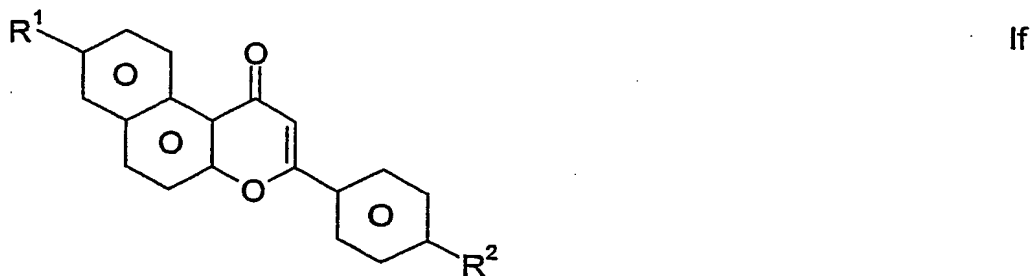
with the proviso that if Z<sup>1</sup> denotes a single bond, k1 = 0 and k2 = 1,  
then A<sup>1</sup> is a single bond.

5. Compounds according to claim 3 of the subformula Ie



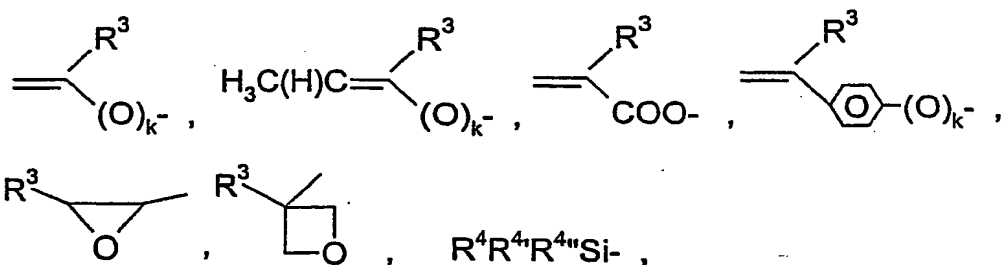
wherein  $R^1$  and  $R^2$  are defined as in claim 1.

6. Compounds according to claim 1 of the subformula If



wherein  $R^1$  and  $R^2$  are defined as in claim 1.

7. Compounds according to one of the preceding claims 1 to 6 wherein P is selected from



wherein

$R^3$  is H, Cl or alkyl with 1 to 5 C-atoms,

$R^4, R^4', R^4''$  are independently of each other -Cl, -O-alkyl and/or -O-CO-alkyl with alkyl having 1 to 5 C-atoms and

k is 0 or 1.

8. Polymerizable mixture comprising at least one compound according to one of the claims 1 to 7.
9. Polymerizable mixture according to claim 8 further comprising at least one polymerizable mesogenic compound of formula II



wherein

P is a polymerizable group,

Sp is a spacer group having 1 to 20 C-atoms,

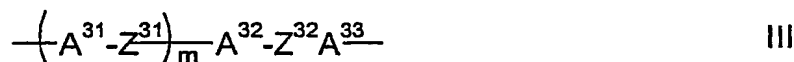
X is a group selected from -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-, -SO<sub>2</sub>-O-, -O-SO<sub>2</sub>- or a single bond,

n is 0 or 1,

R<sup>21</sup> is H or an alkyl radical with up to 25 C atoms which may be unsubstituted, mono- or polysubstituted by halogen or CN, it being also possible for one or more non-adjacent CH<sub>2</sub> groups to be replaced, in each case independently from one another, by -O-, -S-, -NH-, -N(CH<sub>3</sub>)-, -CO-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S- or -C≡C- in such a manner that oxygen atoms are not linked directly to one another, or alternatively R<sup>21</sup> is halogen, cyano or has independently one of the meanings given for P-(Sp-X)<sub>n</sub>,

MG is a mesogenic or mesogeneity supporting group.

10. Polymerizable mixture according to claim 9 wherein MG is a mesogenic or mesogeneity supporting group of formula III



wherein

$\text{A}^{31}$ ,  $\text{A}^{32}$ ,  $\text{A}^{33}$  being independently from one another 1,4-phenylene in which, in addition, one or more CH groups may be replaced by N, 1,4-cyclohexylene in which, in addition, one or two non-adjacent  $\text{CH}_2$  groups may be replaced by O and/or S, 1,4-cyclohexenylene or naphthalene-2,6-diyl, it being possible for all these groups to be unsubstituted, mono- or polysubstituted with halogen, cyano or nitro groups or alkyl, alkoxy or alkanoyl groups having 1 to 7 C atoms wherein one or more H atoms may be substituted by F or Cl,

$\text{Z}^{31}$ ,  $\text{Z}^{32}$  being independently from one another -O-, -CO-, -COO-, -OCO-, -SO<sub>2</sub>-O-, -O-SO<sub>2</sub>-, -CH<sub>2</sub>CH<sub>2</sub>-, -OCH<sub>2</sub>-, -CH<sub>2</sub>O-, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond and

m is 0, 1 oder 2.

11. Polymerizable mixture according to claim 8, 9 or 10 further comprising at least one polymerizable and photoorientable compound.
12. Polymerizable mixture according to claim 11 characterized in that the polymerizable and photoorientable compound is denoted by the formula IV



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wherein

P is a polymerizable group,

Sp is a spacer group having 1 to 20 C-atoms,

X is a group selected from -O-, -S-, -CO-, -COO-, -OCO-,  
-O-COO-, -SO<sub>2</sub>-O-, -O-SO<sub>2</sub>- or a single bond,

n is 0 or 1,

A<sup>41</sup>, A<sup>42</sup>,  
A<sup>43</sup>, A<sup>44</sup> are independently of each other 1,4-phenylene, wherein  
1, 2, 3 or 4 H-atoms may be replaced by F or Cl,

A<sup>41</sup>, A<sup>44</sup> may in addition to the above given meaning denote  
independently of each other a single bond,

Z<sup>4</sup> is -N=N-, -CH=CH- or  $\left(\text{O}\right)_{s1}\left(\text{CH}_2\right)_{s2}\text{O-CO-CH=CH-}$   
with s1 being 0 or 1 and s2 being 0 to 6,

R<sup>41</sup> is H, halogen, NO<sub>2</sub>, CN, SCN, straight chain, branched  
or cyclic alkyl with 1 to 25 C-atoms wherein one or more  
CH<sub>2</sub> groups can also be replaced by -O-, -S-, -NR<sup>o</sup>-,  
-CH=CH-, -C≡C- in such a manner that O- and/or S-  
atoms are not linked directly to one another, and  
wherein one or more H-atoms can also be replaced by  
F or Cl, or denotes P-(Sp-X)<sub>n</sub>.

13. Polymer material obtainable by polymerizing a polymerizable mixture  
according to one of the claims 8 to 12.

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14. Polymer material according to claim 13 obtainable by a process comprising the following steps
- a) forming a thin layer of the polymerizable material,
  - b) aligning the molecules of the compounds of the mixture in the thin layer into a uniform orientation or a patterned orientation such that in each pattern the orientation is uniform,
  - c) polymerizing said polymerizable material.
15. Use of a compound according to one of the claims 1 to 7 or of a polymerizable mixture according to one of the claims 8 to 12 for the manufacture of photoluminescent and/or electroluminescent polymer materials.
16. Use of a polymer material according to claim 13 or 14 as a photo- and/or electroluminescent material in a light emitting device, an optical or electrooptical display element.
17. Light emitting device comprising a polymer material according to claim 13 or 14 as a photo- and/or electroluminescent material.
18. Optical or electrooptical display element comprising a polymer material according to claim 13 or 14 as a photo- and/or electroluminescent material.